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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,722

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Hitoshi Nakajima

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EXAMINER

HAN, KWANG S

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

10/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/534,722	Applicant(s) NAKAJIMA ET AL.	
	Examiner Kwang Han	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

CATALYST FOR FUEL CELL AND ELECTRODE USING THE SAME

Examiner: K. Han SN: 11/256,337 Art Unit: 1795 October 13, 2009

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 7, 2009 has been entered. Claims 1 and 6 were amended. Claims 5 were cancelled.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: SOLID HETEROPOLYACID CATALYST FOR FUEL CELL AND ELECTRODE USING THE SAME.

Claim Rejections - 35 USC § 102

4. Claims 1-4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Sumida et al. (US 2002/0133043).

Regarding claims 1 and 4, Sumida is directed towards a catalyst material which possesses a Keggin type heteropoly acid structure [0012, 0013], defective structure sites with alkali metal ions (sodium, potassium) [0014] having a molecular weight between 800 to 10000 (Ex. $Y_1M_{10}O_{36}$ has a molecular weight of 1564, when Y is Si and M is Mo) and at least one atom of a transition metal substituted in the skeleton of the heteropoly acid [0015, 0039, Claim 3]. The intended use limitations of the claim have not been given patentable weight.

A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Regarding claim 2 and 6, Sumida discloses the elements Au, V, and other elements of periods 4-6 of Group IB, VA, VIIA, and VIII of the periodic table [0010].

Regarding claim 3, Sumida further discloses tetraalkyl ammonium ions [0014].

Claim Rejections - 35 USC § 103

5. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Otomo et al. in view of Li on claims 1-11 are withdrawn, because independent claim 1 has been amended, claim 5 has been cancelled and Applicant's arguments.

Art Unit: 1795

6. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sumida et al. (US 2002/0133043) in view of Otomo et al. (JP 2002-134122, machine translation).

The teachings of Sumida as discussed above are herein incorporated.

Regarding claim 7, Sumida is silent towards the heteropolyacid catalyst being held on the surface of a solid electrode.

Otomo teaches a solid heteropolyacid catalyst for a fuel cell including a noble metal or a transition metal [Abstract, 0011, 0012] being held on the surface of a carbon electrode [0041, 0046] (base material, carbon paper) to form a fuel cell with a cheap and highly active catalyst material. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the catalyst of Sumida on the surface of a carbon electrode because Otomo teaches that a heteropolyacid catalyst is a cheap and highly active catalyst material for use in a fuel cell.

Regarding claim 8, Otomo et al. discloses a mixture of the solid heteropolyacid for a fuel cell with a conductive powder (carbon) and a binder (Nafion) [0045-0047]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a conductive powder and a binder in a mixture for the catalyst because Otomo teaches this allows for the formation of the electrodes for the fuel cell.

Regarding claim 9, Otomo et al. discloses a conductive powder which is carbon [0045].

Regarding claim 10, Otomo et al. discloses a binder that is an organic polymer [0046] (Nafion).

Art Unit: 1795

Regarding claim 11, While the prior art does not explicitly teach the cation to be insoluble in water, these properties are considered inherent in the prior art barring any differences shown by objective evidence between (the object) the partial salt heteropolyacid catalyst disclosed in the prior art and the applicant. As (the object) catalyst taught by the prior art and the applicant are identical within the scope of claim 1, Otomo modified by Li inherently teaches that the partial salt heteropolyacid comprises cations insoluble in water.

Response to Arguments

7. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./

Examiner, Art Unit 1795

/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795